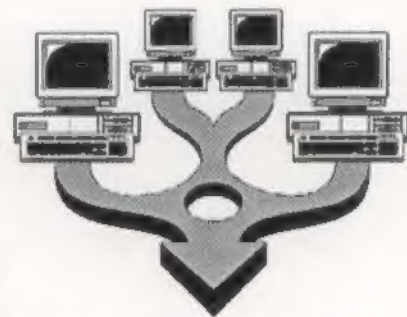




## THE MAY MEETING

In the wide range of presentations related to Amateur Radio subjects that we enjoy at our monthly meetings, it is with pleasure we announce that our next meeting will provide a description and demonstration of Transmission Control Protocol/Internet Protocol which is regarded as being at the leading edge of present day communication technology.

Larry Pleasant, G4IZC and his team of friends from The Essex T.C.P./I.P. Group will set up equipment to show the application of high speed data transmissions using amateur radio and explain how some of the difficulties experienced with limited bandwidth can be overcome when compared to the Internet data links over telephone lines. The meeting opens at 7.30pm in the Marconi College, Arbour Lane, Chelmsford.



## DATES FOR YOUR DIARY

- 4 May RSGB HQ OPEN DAY - 10am to 4pm.
- 7 May CLUB MEETING - TCP/IP Demonstration.
- 19 May DUNSTABLE DOWNS RC CAR BOOT SALE.
- 26 May EAST SUFFOLK WIRELESS REVIVAL.
- 26 May RSGB REGIONAL OPEN FORUM - Rivenhall.
- 1/2 June NATIONAL FIELD DAY - Museum Site.
- 2 June WATERS & STANTON OPEN DAY - Hockley.
- 4 June C.A.R.S. CONSTRUCTORS' COMPETITION.

## NFD - 1st/2nd June 1996 - Gwyn, G4FKH

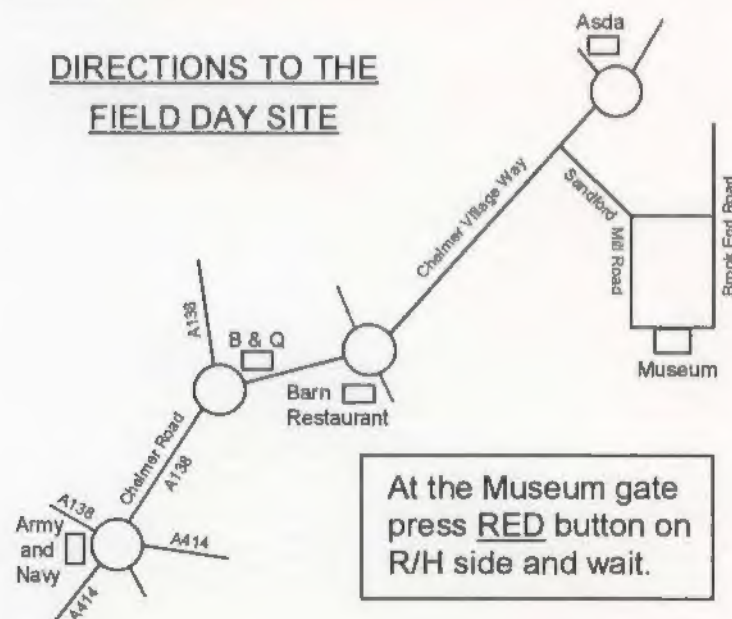
As scheduled, a pre-NFD meeting was held at GØGJS's QTH on 17<sup>th</sup> April. Everything is in order for the club to enter this year's activities.

The site this year will be in the grounds of the Chelmsford Science and Industry Museum, Sandford Mill Waterworks, Sandford Mill Road, Chelmsford.

The map below shows the exact location.

It has been decided to gather on site at 08.30hrs on the Saturday. This notice is also a call for assistance in putting the station together and dismantling it on the Sunday. Petrol for the generator has been organised, as well as some NAFFI supplies. Any cakes etc., will be very welcome. Do come along and help, you are also invited to visit the site for a cuppa or chat etc., whenever you have the time or inclination.

## DIRECTIONS TO THE FIELD DAY SITE



## INTERNATIONAL MARCONI DAY - Geoff, G7KLV

IMD, like NFD, is now a well established event in the Club calendar and thanks to the courtesy of the Chelmsford Museum Service we were able to celebrate the event once again from the "Writtle Hut" located at the Sandford Mill Museum site.

Flushed with the success of last years event we decided to operate for the full 24 hours and make some engineering changes. Retaining the 80m dipole, and instead of Pat's Hately located at right angles, we installed a 77m long wire slung between the chimney and a convenient flagpole, with a "Tony" ground plane (prov.pat.pending), in line with the dipole. Starting on the Tuesday we divided ourselves into two erection teams, one for the long wire and one for the dipole. Tony and I still have red faces as it took us over two hours to get the dipole up. We couldn't remember which side of the power line the open wire feeder came down. We got it wrong and then one leg took a ducking and had to be rescued with a conveniently handy boat hook!

Earlier that morning Roy had master minded the installation of a 17ft extension pole on a convenient chimney while Tony did likewise on the quadpod on the other side of the water. We got there in the end and re-assembled on the Friday afternoon to have a dummy run and tune up prior to going on air at 1am (local).

During that afternoon we had a visit from Essex Radio who came to see what it was all about. Radio Essex arranged a phone-in for the early morning show and we press-ganged Charles into doing the honours there. They came back later in the morning and I am told that the YL reporter made quite a hit with our Gwyn!

So much for the installation, now a few words on the operating side. The club rig and the new ASTU were permanently installed on the dipole in the hut and worked on 80m throughout the 24 hour session. We had only been on the air for 18 hours last year. The long wire was available for members with their own rigs and 3 members took advantage of this as well as sharing their rigs with others.

Spot on time we started with Chris IPU and Andy doing logging on 80m and soon had a steady stream of calls.

Poor old Pat SBQ had a very dull time, only managing to raise about seven contacts on 40 in about four hours but things livened up a bit as dawn broke. Arthur KPJ worked 17 on top band. Charles also had a long leisurely session on top band in the evening and was suprised to get an MM from a ship off Dungeoness bound for Indonesia with steel. Geoff EDM, Ralph NAA, Malcom KGL, Wally MCO, Colin TRM and Gwyn FKH all did a stint throughout the day, mostly on 80m, CW and SSB, Tony YTG, assisted by George GNQ, did a spot outside on 40m. There was not enough wind on that warm afternoon to really get his kite up but somehow he used it to get a wire up in a nearby tree.

(continued on page 2)



## LAST MONTHS MEETING - John, G8DET

It was not possible to present the Satellite Lecture as scheduled but at short notice Professor Les Barclay, OBE, G3HTF gave an illustrated talk entitled "Two Years in the Antarctic".

Les explained that in 1956 he saw an advert in the Wireless Engineer for radio engineers to join the Royal Society expedition to the Antarctic for the International Geophysical Year (the IGY extended until 1958). The First Polar Year was in 1882 and the 2<sup>nd</sup> Polar Year was 1932. Using mainly 35mm Ferraniacolor slides which he processed himself while in the Antarctic, Les showed first pictures of the support vessel Magga Dan being loaded in Butler's Wharf, London followed by Madeira, looking down into Funchal (without the high rise hotels). A major distraction from the routine on the long voyage was when King Neptune ducked all new members as they crossed the Equator. The last call for fresh supplies was in Montevideo in South America.

Next they called at the South Georgia whaling station where many years later the Argentinians raised the flag so starting the Falklands conflict. He told the audience that Shackleton had gone to the Antarctic in 1914 but the Endurance became stuck in the ice, was crushed and sunk. The crew trekked across the ice and then took to open boats before landing on Elephant Island. Shackleton and a small party sailed the 1,000 miles to South Georgia, landing on the leeward side and made the first crossing of the mountainous island to raise a rescue party which at the 3<sup>rd</sup> attempt found the remainder of the party alive. In 1922 Shackleton died of natural causes while on his way to the Antarctic on another expedition and was buried on South Georgia. This enabled Les to photograph Shackleton's Grave. They arrived at the Weddell Sea, off Coats Land and eventually found the base at Halley Island after fighting their way through the pack ice. Everyone helped with the unloading of 2 years of supplies for the 21 member party, leaving stores on board for Vivian Fuchs and the Trans Antarctic Expedition.

The wooden accommodation hut, 30ft x 120 ft, had been constructed the previous year and was complete with windows, curtains and pictures. The carpenters had to build the special non-magnetic magnetometer hut, accounting for all tools each night - Les never went in it during his stay. A hut was built for the two 25 kWatt diesel generators and a dexion staging for the ration crates. Two Rhombics were erected, one directed at the UK (and Australia) the other towards the Falkland, USA (and the Pacific). The Ionospheric aerals consisted of four 78 ft Deltas - looking straight up - with 600 ohm feeders back to the radio room. Once the basic construction work was completed the base settled down to a routine to await the beginning of the IGY. 5 lbs of bread was eaten and 40 gallons of fuel were used each day.

Drinking water was obtained initially from cutting 18" cubes out of the snow and hauling them onto a sledge to be melted down in the hut, as the snow built up it was shovelled down a shoot into the tanks.

In the Antarctic it is beautiful when it is nice but dreadful at all other times. White-out being the condition when visibility could be almost zero or the horizon fuses into the sky; extreme care being taken to prevent getting lost. Typical temperature being -40°C.

For 3 months there is virtually continuous darkness starting in May. On 1<sup>st</sup> July 1957 the IGY started. Twice a day a meteorological balloon was released fitted with a transponder on 27 MHz and tracked by radar. Readings were also taken which were the basis years later to determine the absence of the Ozone layer.

Christmas in the Antarctic is also mid-summer and they had a traditional celebration. The supply ship Tottan brought mail and another years supply of stores.

The routine continued - when the radio transmitters were not being used Les re-tuned them to the amateur bands and worked the world and back to the UK including G3FKH at Shenfield and CT3AN, EL1X, FB8XX, GD4VH, I5FL, KB5BH, KG1CK, KM6BL, KR6HP, MP4BCC, OQ5RT, OX3KW, TG7JD, UA0RW, UN1AB, VE8PB, VK9AD, VK0KT, VP2AB, VR2DG, VS1GZ, XW8AH,

ZB1HKO, ZK1AK and 41 US States. The 15 metre band being mostly used - in those days it was AM.

As the next winter's snow fell the hut was covered - extension tubes were put on the chimneys - tunnels were cut to get snow for drinking, access and to clear it away from the aerial feeders. One day the stresses were too great and the main aerial pole suffered a large kink - but it lasted until near the end of the IGY.

The results of all the data were written up into four large books which Les brought along - the IGY was really the first time that the West cooperated with the Russians and may well have had an effect on the ending of the Cold War. All countries continued their Antarctic stations - the UK is on its 4<sup>th</sup> accommodation hut - previous ones being crushed and fallen into the sea with the continuous ice drift.

A wonderful experience which commands respect and interest, well told and shown 38 years later.

Thank you Les for the most interesting evening.

## FORTHCOMING EVENTS

Now is the time to plan for the June and July meetings which rely entirely on members participation.

**1. June 4<sup>th</sup> - THE CONSTRUCTORS' COMPETITION** - please support this event, we are hoping for a large number of entries this year. The small number of entries last year made the Committee consider whether to continue promoting the competition, the decision was to give it one more try . . . . we hope this was the right decision?

**2. July 2<sup>nd</sup> - C. A. R. S. BYGONES** - this event requires much digging around in the archives of the lofts and the sheds for memorabilia. Chairman John has suggested that items of equipment and photographs of at least 30 years vintage should be considered for inclusion in the display we have on show . . . . so please get digging!

**3. July 14<sup>th</sup> - INDUSTRIAL MUSEUM OPEN DAY** - this is a Sunday event and the Club has volunteered to support Geoff Bowles with a "Station on the Air" for which a team of helpers would be welcome.

### I. M. D. (continued from page 1)

We had a number of unexpected, but welcome visitors, including the son of silent key G3OET, Ray Tunstill, who will be remembered by many.

There had been a steady stream of contacts on 80m throughout the day but in the evening 'till close down at 1am the pace really hotted up. Roy and Ela took over at 8pm. Ela displayed her competitive skills ( "I'll take the Charlie Tango first, please! ) and was keeping up a furious pace, with folk trying desperately to qualify for the official certificates, until about ten minutes before close down when Fabio called. This IKI was obviously smitten and would just not let her go! No sir! Had it not been for this eloquent Casanova rabbiting on I estimate that our number of contacts would have been 700 instead of the official figure of 691! All in all, a most enjoyable day.

Pat has done an initial analysis of the contacts as shown below,

<u>BAND</u>	<u>CW</u>	<u>SSB</u>	<u>RTTY</u>
160	11	57	
80	31	505	
40	48	13	
20	7	18	1
Totals	97	593	1

Grand Total = 691

To the many who helped to make this day a success we must not forget those who gave us special help:-

To Harry HF and Pippa for the excellent spread they provided,

To Tony YTG for transporting our two 17ft poles on June's car. We were both glad when we arrived safe and sound at the Museum, and to Colin TRM for providing one of them,

To Pat SBQ for his liason with the Cornish club,

Above all to our host Geoff Bowles for his unfailing kindness and infinite patience.



## SILENT VOICE - Eric, G8ADX

This month our sympathies go to Roy, G3PMX, who laid his father, Cyril, to rest at the age of almost 95. Although Cyril was not a member of this club he undoubtedly has had quite an influence on it through Roy.



In 1921 Cyril gave up flying to pioneer the first radio relay system in Clacton. In those days "Wireless Sets" were powered by accumulators which, most inconveniently, had to be recharged at the local garage, so Cyril's idea to relay wireless programmes by wire soon caught on. Other systems soon followed and his sound relay business grew. His first Public Address 'Outside Broadcast Unit' was a van with a false floor which concealed two large banks of glass accumulators, one for the amplifier heaters and one for the HT and on the roof was mounted a large loudspeaker horn, Roy still has a photograph of this.

From this the business grew and eventually Roy was able to support his father by making and servicing the equipment needed by the army of enthusiasts who appeared at weekends and holidays to cover all the various shows across at least three counties. These shows ranged through the Essex Show, Burnham Carnival, traction engine rallies, fetes, garden parties and even to providing a standby emergency PA system for the great Shell Company during the shut-down of their refinery. In fact, it would be true to say that anywhere that PA was needed some of Cyril's equipment would be there powered either by batteries, petrol generator or 'Electric Mains', as he called it. His company motto, "First in the Field", was most apt, not only for pioneering radio relay systems but he was very often the first on site and could be heard saying "Got to dig these wires in so the public don't trip over them". Marks Tey Radio, who acquired the business in recent years, have a cable laying machine for this job and have christened it "Cyril".

Of interest to us is one of the many pieces of equipment produced by Roy in the 60's. I remember it well.....it took two of us with poles through it's handles to lift it...it was, or rather is, since it is still in full time service with Marks Tey Radio, a 400 watt valve amplifier. It is well named "Big Bertha".

Wherever he went Cyril was liked and respected, loved by his band of helpers. He was one of those people who you feel honoured to have known and with the realization of the influence he has had on one's life. If you have the good fortune to reach the 'Arrivals Lounge' at the Pearly Gates and there's music and announcements on the PA, nip around the back to the caravan and say Hi to Cyril.

*(Thank you Eric, ed:)*

## POSTCODES

For some indeterminate reason, many of the postcodes in the Springfield area of Chelmsford have been changed.

Among many householders who has suffered the inconvenience of this change is Arthur Butcher, G3KPJ who has asked us to publish his new code. . . . CM1 6FJ.

## COMMITTEE MEETING

The next Committee meeting will be held at 7.30pm on Wednesday 15<sup>th</sup> May, in Telford Lodge, you are welcome to join us.

## HI-VOLT - John, G8DET

Follow-up to the story of Peter Graves and finding 400 volts on his house wiring. It is not actually known what the fault was in this case but it is reported to happen some 700 times/year throughout the UK. It is not possible to give the cause of the faults in this case, but it is possible to describe the typical situation that an electrical engineer could find when examining such a fault.

Power is generated at the power station in 3 phases and transported on grid lines typically 132,000 volts or the super grid of 400,000 volts. The high voltage is chosen to reduce I<sup>2</sup>R losses in the feed cables. To save having a 4<sup>th</sup> distribution wire the 3 phases are arranged as a Delta Distribution and should ideally be balanced. Once switched and sent to a town it will be transformed down to 11,000 volts - still Delta Distribution - hence one sees in the UK the typical wooden poles with 3 wires on a horizontal cross arm going from field to field. At some point this has to be transformed down to be used by a customer. In a domestic situation this may be a small substation inside a wire or wooden fenced compound by the side of a road. Here 11,000 volts Delta Distribution comes in and 415 volts Star Distribution come out. The Star centre point is earthed at the substation and connected to the distribution Neutral Feed. Measuring between any one of the phases and neutral will give 240 volts nominally, between any two phases 415 volts.

A modern plastic cable which feeds the houses is generally constructed like a RF coaxial cable except it has 3 "inners" - one for each phase. The "screen" is the Neutral and is insulated from the surrounding earth by layers of insulation. To save money the sheath was originally aluminium but now is usually copper, due to corrosive problems in the past.

As the cable winds its way up the road the feed distribution to each house is usually taken from the phases in turn, e.g. first house connected to Phase A (doesn't matter which) and Neutral - second house to Phase B & Neutral, third house to Phase 3 and Neutral, 4<sup>th</sup> house to Phase A and Neutral and so on.

A short piece of twin cable connects the feed cable in the pathway to the house where it is terminated on a Service Fuse. Ideally the incoming cable has a sheath which is connected to the house common earth point. In reality this earth is not as reliable as it was many years ago. The electricity companies bang a long earth spike into the ground at the cable end joint and connect this earth to the neutral wire in the feed cable, in effect providing "Protective Multiple Earths" hence the term PME.

The problem is that these earths can be ripped out by other utilities eg drilling holes testing for gas, water etc. or remote mole boring.

All works well, even with some of the PME's missing, until a fault appears.

Again, going back 40 years a reliable earth could be obtained from the incoming water mains pipe - or gas pipe - but more are now plastic.

Let us assume that a fault develops such that Phase B in the cable makes contact with the sheath. Ideally the tremendous current should blow a fuse in the substation and isolate the faulty phase or disconnect the whole LV feeder. However the sheath is subjected to all sorts of stresses and strains and sometimes the fault current simply blows away a couple of inches of the sheath instead!. The sheath is still connected to Phase B - AWAY from the substation. The Neutral Wire at houses connected to Phases A & C may well be at Phase B potential; depending on the size and degree of effective earthing at each house and whether retrospective bonding of Earth To Neutral was undertaken - these houses will have Phase to Phase voltage present eg 415 volts. The customers on Phase A could have virtually anything from no volts to 240 volts between Neutral and a local earth!.

If bonding is undertaken - and it should if you have PME - 10mm<sup>2</sup> copper wire is needed - anything less could disappear under fault conditions.

*(continued on page 4)*



## HI-VOLT - (continued from page 3)

My suggestion that every 3<sup>rd</sup> house is connected to each phase in turn is easy initially - but what happens when there are a few building plot spaces passed? Also houses which initially were on gas for cooking may have gone electric and vice versa. Night storage has taken over from under floor heating - Economy 7 has replaced a White Meter with afternoon boosts. All these constantly happening changes means that the original balanced load on each phase may not be so good - the higher the unbalance so the greater the standing neutral current is. Before it was sorted out the writer knew of a district where dozens of porch lights and door bells were run between Neutral and local earth due to the unbalance - free 24 volts! In a factory the load on each phase is monitored to ensure it is balanced - if not a premium payment has to be made to the supply company. This is not possible with domestic distribution.

Have I been able to explain what can happen or have I simply worried you all?

In simple terms, good bonding and earthing at each house, fit a number (I have four) 180 joule high voltage suppressors, pay your house insurance and sit back knowing you have done all you can.

This weekend while talking to a neighbour I found out that in their house the following failed over three days:- Dishwasher, washing machine, freezer, central heating and the video - my dishwasher stopped half way through its cycle one night due to low volts - I wonder?.

## THE HARWICH MUSEUM - Harry G5HF

It's open!!! This long awaited site (the High Lighthouse) is now open to the public and the entrance charge is £1 per adult and 50p for children. At the moment it is open at weekends, but after Whitsun they hope to open it 7 days a week for the Summer.

Room inside is very limited, but they would be happy to have parties of 20-30 with guided tours of about 8 people at a time. A small discount would be allowed for groups, but the charge is not too Pension-stretching anyway.

Most of the exhibits are commercial radios, radio grams and TV sets of the 1940-1960 period, but they are starting a pre-war section. They also have some other domestic appliances such as electric fires and lamps, as well as a few instruments. There is a room devoted to Radio Caroline, which seems to figure largely in their interests.

The Museum is run by a Trust organised by Tony O'Neill, who is a musician and he runs the Museum as a hobby. If you wish to organise a Group visit, he would be pleased to talk on the phone at 9.30am (when he gets up?) or at 6.00pm (when he goes to work). The number is (01206)322606.

## STOP PRESS

Announced on 29<sup>th</sup> April by the Radiocommunications Agency, a new Amateur Band 71.6KHz to 74.4KHz has now been assigned.

Intended to address requirements of radio amateurs who wish to investigate propagation by transmission from underground caves.

Available to Class A Licence holders who wish to investigate LF propagation. Interested parties will require variation to their licences and should apply to the RSGB HF Committee.

## COPY OF LETTER RECEIVED FROM G3RWL

60 Willow Road  
Enfield EN1 3NQ  
16 April 1996

I write to apologise to members of the Chelmsford Amateur Radio Society for having to cancel my lecture about Amateur Radio Satellites last month; this was due to unforeseen domestic problems.

It was even more unfortunate after your editors gave me such a good write-up in the club's newsletter. I realise that quite a few of you had been looking forward to the talk, I'm sorry I couldn't make it and hope that we might be able to manage another date in the future.

I could possibly even fill in should the club have the misfortune to have another speaker cancel.

In the meantime, if any of you have any burning questions about the subject, please feel free to contact me direct.

73, (Signed) R.W.L. Limbear, G3RWL.

.....

OM's,

Grateful if you could put this in the next Chelmsford club newsletter.

73, R.

Telephone: 0181-366-4297 (home)

E-Mail: richard@g3rwl.demon.co.uk

Packet Radio mailbox: GB7HSN

## THE BIG ONE

In the Society's postbag this month is a wall poster announcing the Waters & Stanton sixth Annual Open Day on Sunday 2<sup>nd</sup> June; it is proclaimed "BIGGEST EVER", so all we can say is "see you there"

73 from Roy & Ela Martyr,  
G3PMX & G6HKM

☎ (01245)360545

1, High Houses,  
Mashbury Road,  
Great Waltham,  
CHELMSFORD,  
Essex, CM3 1EL.

*p.s.*

*Don't forget the  
Constructors'  
Competition!*

